CHAPTER 2L
DAM GATE ERECTION

2L-01. GENERAL

This chapter covers the erection and installation of tainter, broome, truck and sliding dam gates. It is to be noted that in some instances gates are assembled or fabricated in the field and then installed. In other cases, the gates arrive on the job completely assembled, ready for installation in the structure.

Gates assembled or fabricated in the field require a more detailed, thorough inspection of a specialized nature. The nature of the inspection necessary to accomplish a thorough job borders on the shop-type of inspection rather than that with which the construction inspector is normally acquainted. It is, therefore, mandatory that during the erection of the gate more frequent assistance from a mechanical inspector or engineer be requested.

2L-02. INSPECTION REQUIREMENTS

a. General

(1) Check all gates, gate materials and accessories at delivery for damage and shortages.

(2) Check all approved shop drawings have been received and are available for use.

(3) Check all bearings and finished metal surfaces are protected.

(4) Check storage of materials. If adequate storage for equipment is not called for in the contract, the QAR should notify his immediate superior for necessary action.

(5) Check all embedded items prior to placement of concrete for elevation, location, alignment and rigid attachment.

(6) Check cleaning and protection from damage and corrosion of all machined finished surfaces and seals immediately after formwork removal.

(7) Check vertical guides, tracks, etc. for alignment and plumb.

(8) Check after concrete placing operations all clearances between moving and stationary items of the gates.

(9) Check seal clearances and contact area between seals.

(10) Check movement of gates through full length of lift for binding.

b. Tainter Gates

(1) Check installation of trunnion anchorage assembly. Particular attention should be to avoidance of welding in vicinity of prestressing steel, assembly of anchorage end of

prestressing steel, calibration and approval of jacking equipment, following approved abstentionist procedure, and submission of gauge pressure and elongation records.

(2) Check parallel operation of gates with respect to side seals.

(3) Check that both ends of gates rise together and at a uniform rate.

(4) Check that hoisting cables are properly rigged and fastened.

(5) Check sill seal and side seals for degree of compression when gate is in closed position.

c. Broome Type Gates

(1) Insure angle of inclination for seal was properly set.

(2) Check removal of mortar, concrete, and dirt from seals prior to placing gate in frame.

(3) Check seals for uniformity of contact.

(4) Check cleaning of all roller pads and surfaces of rollers.

(5) Check rigging of cable for twist and twisting of sheaves.

(6) Check record setting of all limit switches.

(7) Check cleaning of hoisting cables prior to lubrication.

(8) Check that hoisting cable does not scuff against sides of openings through floor slabs.

(9) Assure adequate lubrication (usually water) to prevent damage to rubber seals.

d. Truck Type Gates

(1) Check wheel bearings for cleanliness and lubrication.

(2) Check gauge of truck wheels against guide track for alignment.

(3) Check that gate hangs plumb.

(4) Check wheel adjustment such that proper seal contact is maintained with gate in fully closed position.

(5) Check all running clearances between tracks and wheels through full travel of gate.

e. Sliding Gates (Stem Operated)

(1) Check that gate is centrally located in guides prior to setting anchor bolts, embedded items above gate for bearings, guides, etc.

(2) Check anchor bolt setting in operating room floor slab by plumbing up of center of stem opening in gate.

(3) Check hoist stems for plumb.

(4) Check cleaning of internal nut threads in hoists and threads on stem prior to assembling hoist into stem.

(5) Check that stem travel through hoist is parallel to surface of stem nut.

(6) Check application of a protective coating to all finished ferrous surface and lubrication of threads and bearings.

2L-03. WELDING

Refer to Chapter 5B.

2L-04. GATE OPERATING MACHINERY

a. Drum Hoists

(1) Check lay of cable on drums for overlapping, jumping, or scuffing when gates are raised or lowered.

(2) Check level of hoist assembly.

(3) Check that proper residual turns are adequate per shop drawings with gate in closed position.

(4) Check ropes of hoists using ribbon wound multiple hoist ropes for equal load distribution.

(5) Check gate indicator against actual gate position.

(6) Check alignment of all gearing for even bearing area and correct contact area.

b. Motorized Screw Hoists

(1) Check location of center of hoist with center of point of attachment of stem on gate.

(2) Check that hoist is plumb and level.

(3) Check cleanliness of all moving parts prior to operation.

(4) Check for binding between keyway in stem and key in torque plate.

(5) Check rotation of motor drive prior to operation and before stem is in place.

(6) Set and check limit switch operation.

2L-05. FINAL INSPECTION

a. Material and Equipment

(1) Check that brakes, limit switches and safety devices are functioning.

(2) Check that all moving parts have been lubricated.

(3) Check that all seals are clean and adjusted.

(4) check that all temporary blocking supports have been removed.

b. Operation

(1) Recheck clearances over entire travel of gates.

(2) Operate gate at first through short distance of travel.

(3) Check for bindings, overloading of motors, uneven travel of gates, and noise.

(4) Test gates through complete cycle of operation.

(5) Check gate and seals for water-tightness.